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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,479	08/15/2003	Xiaodong Duan	AVA-P005	3852

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HOUSTON, TX 77056

EXAMINER
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CURS, NATHAN M

ART UNIT	PAPER NUMBER
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2613

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

5/10

<b>Office Action Summary</b>	<b>Application No.</b> 10/642,479	<b>Applicant(s)</b> DUAN ET AL.	
	<b>Examiner</b> Nathan Curs	<b>Art Unit</b> 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 December 2006.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6,8 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1 and 3 are objected to because of the following informalities: the phrase "optical signal noise ratio" should be "optical signal to noise ratio". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-6 and 8 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility. The claims are drawn to a method for computing and/or calculating values, without using the values to produce a useful, concrete and tangible result. The claims are drawn to using the calculated values to "determine" or "ascertain" "the performance" of the network, which merely amounts to acting on the calculated values abstractly, without producing a useful, concrete and tangible result.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 8 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Shin et al. ("Shin") ("A novel optical signal-to-noise ratio monitoring technique for WDM networks",

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Shin et al.; Optical Fiber Communication Conference, 2000; Volume 2, 7-10 March 2000 Pages: 182-184).

Regarding claim 1, Shin discloses a method for distributed optical performance monitoring in a network (page 182, section "I. Introduction"), comprising: selecting a frequency range based on network traffic protocol and transmission rate; sampling a plurality of points continuously at a frequency; determining an average power of the plurality of points; generating a spectrum in frequency domain utilizing a Fast Fourier Transform; generating a noise spectrum density from the spectrum and the frequency range; and calculating an optical signal noise ratio (OSNR) from the noise spectrum density and the average sampled points, wherein the optical signal noise ratio is used to determine the performance of the network (pages 182 and 183, sections "I. Introduction" and "II. Experiments").

Regarding claim 2, Shin discloses the method of Claim 2, further comprising computing an average optical power from a pre-saved calibration table (pages 182 and 183, section "II. Experiments").

Regarding claim 3, Shin discloses a method for distributed optical performance monitoring in a network (page 182, section "I. Introduction"), comprising: calculating a noise spectrum density from a spectrum and a frequency range based on network traffic protocol and transmission rate and computing an optical signal noise ratio (OSNR) from the noise spectrum density and a predetermined calibration data, wherein the optical signal noise ratio is used to ascertain the performance of the network (pages 182 and 183, sections "I. Introduction" and "II. Experiments").

Regarding claim 4, Shin discloses the method of Claim 3, prior to the calculating step, further comprising computing a Fast Fourier Transform and obtaining a spectrum in frequency domain (pages 182 and 183, section "II. Experiments").

Regarding claim 5, Shin discloses the method of Claim 4, prior to the computing of the spectrum frequency domain, further comprising computing an average power of the plurality of points (pages 182 and 183, section "II. Experiments").

Regarding claim 6, Shin discloses the method of Claim 5, prior to the computing step of the average power of the plurality of points, further comprising sampling a plurality of points continuously at a frequency (pages 182 and 183, section "II. Experiments").

Regarding claim 8, Shin discloses the method of Claim 3, wherein the computing of the OSNR is based on the following equation:  $OSNR = (P_{sig} * B_o) / (P_{ase} * R)$  where the symbol "P<sub>sig</sub>" denotes a signal power, the symbol "P<sub>ase</sub>" denotes an Amplified Spontaneous Emission (ASE) power, the symbol "B<sub>o</sub>" denotes a filter band width, and the symbol "R" denotes a wavelength resolution (page 183).

Regarding claim 15, Shin discloses a method of utilizing a performance monitor cell to monitor a channel in a multiplexer, comprising: tapping a portion of a signal from the channel; sampling a plurality of points continuously at a frequency; determining an average power of the plurality of points; calculating a noise power density of the plurality of points, wherein the noise power density is calculated by utilizing a spectrum in a frequency domain and a selected frequency range based on traffic protocol and transmission rate; and determining an optical signal noise ratio (OSNR) from the noise spectrum density and the average sampled points, wherein the optical signal noise ratio is used to ascertain the performance of the multiplexer (pages 182 and 183, sections "I. Introduction" and "II. Experiments").

### ***Response to Arguments***

6. Applicant's arguments filed 20 December 2006 have been fully considered but they are not persuasive.

Regarding the 101 rejections, the applicant argues that the 101 rejections should be withdrawn because the amended claims recite that the OSNR is used to determine the performance of the network. The applicant refers to the previous office action, saying, "...the Examiner states that simply computing and/or calculating values, without using the values to produce a useful result is not a practical application." This recitation is only partly accurate. The examiner's previous statement actually said "Simply computing and/or calculating values, without using the values to produce a useful, concrete and tangible result, is not a practical application" [emphasis added]. The new limitations ("the optical signal noise ratio is used to determine the performance of the network" in claim 1, and "the optical signal noise ratio is used to ascertain the performance of the network" in claim 2) do not provide a **useful, concrete and tangible** result. In other words, the step of "determining the performance" from the calculated OSNR number is merely an abstract "determining" based on a number. Further, the applicants' other changes to claims 1 and 2, replacing "computing" with other language, etc., do not overcome the 101 problems. The limitation "selecting a frequency range" amounts to merely selecting a range of numbers; the limitation "sampling a plurality of points" amounts to merely generating a set of numbers; the limitation "generating a spectrum" merely amounts to creating an abstract representation of numbers; the limitation "generating a noise spectrum density" merely amounts to generating a number; and the limitation "calculating an optical signal noise ratio" merely amounts to calculating another number.

Regarding the 102 rejections, the applicant argues that Shin does anticipate "selecting a frequency range based on network traffic protocol and transmission rate", "sampling a plurality of points continuously at a frequency" and "determining an average power of the plurality of points". This argument is not persuasive. Referring to Shin section "II. Experiments" on page 182, Shin discloses using the FFT data "in the range of 40 ~ 50 kHz" which reads on "selecting

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a frequency range". Shin's selecting is also "based on network traffic protocol and transmission rate" because the frequency range disclosed corresponds to a protocol (i.e. "pattern length" of " $2^{15}-1$ ") and a transmission rate (i.e. "10 Gb/s"). Shin also discloses that the sampling frequency of the ADC is 250 kHz, which reads on "sampling a plurality of points continuously at a frequency". Shin also discloses measuring the noise power based on the sampled data, which reads on "determining an average power of the plurality of points."

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Conclusion***

8. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (800) 786-9199.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pairedirect.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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